



Your Ref: DP3733BK
Our Ref: 49428/3501/CBH/VKR/NC/AREA 2 GW & LEACHATE

19th November 2020

PPC Team
Natural Resources Wales
Rivers House
Fortrain Road
St Mellons Business Park
Cardiff
CF3 0EY

Attn: Tyrone Ward

Dear Tyrone,

Re: DP3733BK – Docksway Disposal Site. Latest Area 2 Groundwater and Leachate Quality Monitoring Report, Round 199, September 2020.

Please find enclosed the results of the groundwater and leachate quality monitoring undertaken at Area 2 of Docksway Disposal Site. Groundwater and leachate monitoring is required quarterly at the site in order to comply with Conditions 3.6.1 and 3.6.2 of the Environmental Permit (DP3733BK). This report includes discussion on results obtained from monitoring during September 2020.

We enclose with this letter report, Figure 2, a plan showing the locations of the available monitoring points. We also enclose the laboratory analytical certificates.

Field Observations

Details of the field testing of the Area 2 groundwater and leachate samples during Round 199 are presented in Table 1, together with depths to groundwater and leachate.

Table 1 Field Testing Results and Observations - September 2020

Monitoring Point	Dates Monitored	Depth to Groundwater/ Leachate (m)	pH	Electrical Conductivity ($\mu\text{S}/\text{cm}$)	Temperature ($^{\circ}\text{C}$)	Dissolved Oxygen (%)
GW06_39	16/09/2020	3.92	8.56	6304	13.44	42.1
GW07_40	16/09/2020	5.22	9.05	2245	13.3	28.4
GW12_30	16/09/2020	4.51	8.3	2397	15.45	38.3
GW09_31	16/09/2020	5.9	8.57	3296	14.95	36.1
GW03_09	16/09/2020	8.05	8.93	7889	15.53	63.7
GW09_32	16/09/2020	8.86	9.03	2648	18.59	83.6
GW12_33	16/09/2020	7.92	8.91	3346	17.04	85.3

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Monitoring Point	Dates Monitored	Depth to Groundwater/ Leachate (m)	pH	Electrical Conductivity ($\mu\text{S}/\text{cm}$)	Temperature ($^{\circ}\text{C}$)	Dissolved Oxygen (%)
GW06_34	16/09/2020	8.82	8.99	1533	17.65	59.4
GW09_35	17/09/2020	6.78	8.42	14743	13.40	62.8
GW09_36	17/09/2020	6.64	8.61	12690	13.92	45.2
GW06_37	17/09/2020	6.59	8.63	16649	13.59	35.8
GW06_13	17/09/2020	5.85	8.86	9764	12.60	30.2
GW12_38	17/09/2020	7.02	8.52	5547	13.14	77.4
GW06_14a	17/09/2020	4.24	8.66	18415	14.47	44.3
LF08_07	25/09/2020	15.35	No field testing undertaken			
C1A	25/09/2020	19.65				
C1B	25/09/2020	20.76				
C1D	14/09/2020	11.09	8.33	9390	20.08	21.9
C1E	25/09/2020	23.94	No field testing undertaken			
C2A	25/09/2020	13.95				
C2B	14/09/2020	23.77	8.87	18640	23.39	45.4
C2C	25/09/2020	17.98	No field testing undertaken			
C3B	14/09/2020	13.2	8.75	25510	25.80	1.6
C4	14/09/2020	5.27	7.97	14718	20.01	22.23

Groundwater Laboratory Testing Results

Compliance Levels

The agreed Control levels and Compliance limits for Area 2 'priority contaminants' are reproduced in Tables 2 and 3 below.

Table 2 PPC Permit Compliance Levels for Emissions to Groundwater (Hazardous Substances)

Monitoring Well	Benzene	Naphthalene	Xylene	EPH	Arsenic
	Compliance Limit	Compliance Limit	Compliance Limit	Compliance Limit	Compliance Limit
	$\mu\text{g}/\text{l}$	$\mu\text{g}/\text{l}$	$\mu\text{g}/\text{l}$	$\mu\text{g}/\text{l}$	$\mu\text{g}/\text{l}$
GW03_09	2	5	3	Not Required	35
GW06_13	2	5	3	Not Required	50
GW06_14a	2	5	3	Not Required	25
GW06_34	2	5	3	Not Required	65
GW06_36	2	5	3	Not Required	30
GW06_37	2	5	3	Not Required	60
GW06_39	2	5	3	Not Required	50
GW07_40	2	5	3	Not Required	35
GW09_31	13	5	3	Not Required	80
GW09_32	3	5	3	Not Required	30
GW09_35	2	5	3	Not Required	50
GW12_30	1	1	1	Not Required	160

GW12_33	1	1	1	Not Required	560
GW12_38	1	1	1	Not Required	26

Table 3 PPC Permit Compliance Levels for Emissions to Groundwater (Non-Hazardous Substances)

Monitoring Well	Nickel		Potassium		Ammoniacal Nitrogen	
	Control Level	Compliance Limit	Control Level	Compliance Limit	Control Level	Compliance Limit
	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l
GW03_09	8	10	160	180	30	35
GW06_13	12	14	100	110	30	35
GW06_14a	12	14	160	180	53	60
GW06_34	12	14	310	350	30	35
GW06_36	8	10	100	110	20	23
GW06_37	8	10	100	110	30	35
GW06_39	26.4	30	100	110	20	23
GW07_40	8	10	39.6	45	20	23
GW09_31	8	10	100	110	50	50
GW09_32	8	10	160	180	50	50
GW09_35	8	10	100	110	30	35
GW12_30	25	30	35	40	10	12
GW12_33	5	6	50	55	15	18
GW12_38	25	30	65	70	10	12

Priority Contaminants

Hazardous Substances (formally List I substances)

All the hazardous substances specified as “priority contaminants” in the Area 2 Hydrogeological Risk Assessment were monitored in groundwater samples from compliance wells in September 2020 and were recorded below the Control Level and Compliance Limits.

Other Hazardous Substances (Annual Screen)

A full hazardous substance screen was carried out during September 2020 in accordance with Condition 3.6.1 of the PPC Permit. The majority of the hazardous substances tested for during this annual round at Area 2 are not designated Priority Contaminants for Docksway Disposal Site and therefore compliance limits are not required to be set. The results of the additional testing undertaken during September 2020 are presented in the enclosed analytical certificates and are summarised below.

The results indicate that with limited exceptions, volatile organic compounds (VOCs), semi volatile organic compounds (SVOVs), mercury, phenols, pesticides and organotins were not detected above the

laboratory method detection limits in the Area 2 groundwater samples during Round 199. The exceptions are as follows:

Table 4 Annual Screen Recorded Concentrations - September 2020

Component	Measured Values (ug/l)	Borehole
Dichlobenil	0.0817 0.135	GW03_09 GW06_39
Terbutryn	0.0225	GW09_31
2(3H)-Benzothiazolone (SVOC TIC)	48.5	GW09_31
Triisoprulphosphate (SVOC TIC)	197	GW09_31
Cyclic Octaatomic Sulfur (SVOC TIC)	165 388	GW06_36 GW06_37
Unknown Sulfur Containing Compound (SVOC TIC)	40.2	GW06_36
Unknown 1 (SVOC TIC)	29	GW09_31
Unknown 2 (SVOC TIC)	14.1	GW09_31

Non-hazardous Substances

None of the non-hazardous substances agreed as “priority contaminants” exceeded the well specific Compliance Limits in the groundwater sampled during Round 199 with the exception of Ammoniacal Nitrogen at GW06_37 which recorded a concentration of 44.4 mg/l, which is above the Compliance Limit of 35 mg/l.

Leachate Laboratory Testing Results

An annual hazardous substance screen of the Area 2 leachate was carried out during September 2020, in addition to the quarterly monitoring, in accordance with Condition 3.6.1 of the PPC Permit. The results of the quarterly and annual screen testing undertaken during September 2020 are presented in the enclosed analytical certificates with the annual screen results summarised below.

The majority of the annual screen results were below the detection limits with the following exceptions;

Component	C1D (ug/l)	C2B (ug/l)	C3B (ug/l)	C4 (ug/l)
Phenol	0.02	<0.02	0.73	<0.01
Cresols	<0.03	<0.06	0.58	0.07
Terbutryn	<0.01	0.418	0.62	<0.01
Bis(2-Ethylhexyl)phthalate	<16	<20	80.8	<16
Total SVOC TIC	3060	3240	23000	5520
1-1'-oxybis[2-ethoxy-]ethane (SVOC)	107			
2(3H)-Benzothiazolone (SVOC)		1760		432
2-Phenyl-2-Butanol (SVOC)			1780	
3,5,5-trimethyl hexanoic acid (SVOC)	625	940	3390	497
3,5-di-tert-Butyl-4-hydroxypheny (SVOC)			1090	

3-Ethylheptonic acid (SVOC)			2890	
4,4'-(1-methylethylidene)bis phenol (SVOC)			4990	
Ibuprofen (SVOC)		145		
Methoxymethyl-dimethylcycloheptatriene (SVOC)			481	
p-tert-butyl benzoic acid (SVOC)			403	
Triisopropylphosphate (SVOC)	1850	1700	3080	3190
Unknown (SVOC)	479	457	3160	
Unknown 1 (SVOC)				218
Unknown 2 (SVOC)				832
Unknown 3 (SVOC)				357

Leachate Measurements

Leachate levels were recorded at C1A, C1B, C1D, C1E, C2A, C2B, C2C, C3B, C4 and LF08_07 in September 2020 and the leachate head levels are indicated to be as follows:

Table 5 Leachate Head

Monitoring Location	Leachate Head (m)
C1A	2.19
C1B	2.16
C1D	0.82
C1E	0.72
C2A	1.43
C2B	1.97
C2C	2.39
C3B	1.90
C4	1.83
LF08_07 (Cell 1)	1.14

Of the ten monitoring points, three (C1A, C1B and C2C) are slightly above the permitted level of 2m. At the remaining seven monitoring points, leachate head levels are below the permitted level.

Leachate Removed

During July to September 2020, a total of 4,284,840 kg of leachate was removed from Area 2 (Cells 1 to 4 combined).

Concluding Remarks

All of the 'priority contaminants' were recorded at concentrations in the groundwater below the well specific Compliance Limits in Area 2 during September 2020 with the exception of the exceedance of Ammoniacal Nitrogen at GW06_37. However, this is not considered to represent a significant deterioration in groundwater quality, and will be closely monitored during subsequent monitoring rounds.

The majority of the annual screen results were recorded at concentrations in the groundwater below the MDL, however some components were detected at relatively low levels. The parameters detected are considered to be general background levels representative of the wider groundwater regime rather than resulting from the landfill site.

Stantec will continue to monitor and comment on the groundwater quality and leachate within subsequent reports. If you have any questions regarding the data, then please do not hesitate to contact us.

Yours sincerely



Kate Riley
Associate
on behalf of Stantec UK Ltd

Encls: Laboratory Certificates
Figure 2

CC: Silvia Gonzalez-Lopez – Newport City Council (NCC)
Robert Hughes – NCC (Docksway Disposal Site)
Luke Embrey - NCC